DISTRIBUTION HEARING EXHIBIT 7000

Before the
COPYRIGHT ROYALTY JUDGES
Washington, DC

In re

DISTRIBUTION OF 2004, 2005, 2006, 2007, 2008, AND 2009 Cable Royalty Funds	DOCKET NO. 2012-6 CRB CD 2004-09 (Phase II)
DISTRIBUTION OF 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, and 2009 Satellite Royalty Funds	DOCKET NO. 2012-7 CRB SD 1999-2009 (Phase II)

Testimony of Erkan Erdem, Ph.D.

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August 22, 2016

I. Introduction

I, Erkan Erdem, am a Senior Manager at KPMG LLP ("KPMG") in the Economic and Valuation Services practice. The economists and statisticians of this practice provide expert analyses on economic and statistical matters to a variety of clients. To assist with the distribution of royalties associated with the retransmission of broadcasts signals by cable in years 2004-2009 and by satellite in 1999-2009, I have been retained by the Settling Devotional Claimants (SDC), one of the two groups of claimants in the Devotional category in the matter of distribution of 2004-2009 Cable Royalty Funds and 1999-2009 Satellite Royalty Funds.

II. Qualifications

I received a Bachelor of Science in Mathematics and Bachelor of Arts in Economics from Koç University in Istanbul, Turkey in 2000. I subsequently earned a Ph.D. in Economics from The Pennsylvania State University in 2006. Between 2006 and 2010, I worked as an antitrust economist for Bates White, LLC, an economic consulting firm, where I prepared expert reports on mergers and acquisitions, monopolization disputes, market power and concentration issues, and cartels. From 2010 to 2013, I worked as an economist at IMPAQ International, a research and consulting firm. In that role, I led large projects for federal agencies such as the Centers for Medicare & Medicaid Services. Since joining KPMG in September of 2013, I have been involved in projects for the Centers for Medicare & Medicaid Services, New York State Department of Health, and Maryland Health Services Cost Review Commission. For the last three years, I have been teaching graduate-level econometrics at University of Maryland as an Adjunct Professor in the Masters in Applied Economics program. My research has been published in peer-reviewed economic journals. I have presented my work and research findings at numerous conferences to a wide range of audiences. I have also testified in prior proceedings before the Copyright Royalty Board. My curriculum vitae, with detailed information on my publications, project work, and conference presentations, is attached as Exhibit 1.

This report is based upon information made available to me. I worked with a team of economists and analysts at KPMG who worked under my guidance during the preparation of my report. I reserve the right to supplement this report should additional information be made available in the future.

The methodology I present in this report provides royalty shares that are consistent with the concept of relative market value in economics. The royalty shares that are based on this methodology are presented in Exhibit 2.

III. Royalty Allocation Process Overview

The purpose of this proceeding, known as Phase II, is to determine the allocation of royalty funds between two categories of claimants represented by SDC and Independent Producers Group (IPG) in the Devotional category. The funds that are relevant for this proceeding were collected for 2004-2009 cable and 1999-2009 satellite retransmissions. It is my understanding that the distribution proceedings for cable and satellite retransmissions are consolidated in the interest of efficiency of case management.[1] It is also my understanding that the Devotional Claimants resolved by settlement their share of the allocation of funds in Phase I, which allocates funds between eight different categories of programming (e.g., Devotional, Sports, Program Suppliers, etc.).[2]

It is my understanding that per Section 111 and Section 119 of the Copyright Act these royalty payments are made by Cable System Operators (CSOs) and Satellite Operators (SOs), respectively (collectively, "Operators"), when they retransmit copyrighted works included in their broadcast television signals outside the program's original, local broadcast area.[3] Royalties are deposited semiannually based on the formulas set forth in the Copyright Act. The owners of the copyrighted works are required to file claims every July to receive a share of the royalties collected in the previous calendar year. Because royalty deposits are not directly tied to individual programs, the Judges of the Copyright Royalty Board are charged with the allocation

[1] Order of Consolidation and Amended Case Schedule, August 29, 2014.
[2] Distribution of the 1999-2009 Cable and Satellite Royalty Funds, Docket Nos. 2007-3 CRB CD 2004-2005, 2008-4 CRB CD 2006, 2009-6 CRB CD 2007, 2010-6 CRB CD 2008, 2011-7 CRB 2009; 2010-2 CRB SD 2004-2007, 2010-7 CRB 2008, 2011-8 CRB SD 2009, 76 Fed. Reg. 80969.
[3] Final Determination of Distributions Phase II, In re Distribution of Cable Royalty Funds 2000-2003.

of and distribution of royalties among the claimants. As I detail in the sections below, the guiding precedent is to measure the "relative market value" of programs to allocate shares of royalties among programs within the "zone of reasonableness."[4]

IV. Materials Considered

In addition to my testimony in the 1999-2009 consolidated cable and satellite proceeding, I have obtained, reviewed, and used the following documents and data files during the preparation of this testimony:

- CRB Order of May 4, 2016 reopening record and scheduling further proceedings.
- Amended Direct Statement of Independent Producers Group, In the Matter of Distribution of 2004-2009 Cable Royalty Funds.
- Amended Direct Statement of Independent Producers Group, In the Matter of Distribution of 1999-2009 Satellite Royalty Funds.
- All supporting documents and data produced by Independent Producers Group as part of the discovery process for the Amended Direct Statement of Independent Producers Group, In the Matter of Distribution of 2004-2009 Cable Royalty Funds.
- All supporting documents and data produced by Independent Producers Group as part of the discovery process for the Amended Direct Statement of Independent Producers Group, In the Matter of Distribution of 1999-2009 Satellite Royalty Funds.
- CRB Order of March 13, 2015 addressing claims of the SDC and IPG.
- Satellite Statement of Accounts for 1999-2009 from Cable Data Corporation (updated as of July 31, 2016).
- Cable Statements of Accounts for 2004-2009 from Cable Data Corporation (updated as of July 31, 2016).
- Programming data for WGN, both for the local market and the distant market (via satellite), for 1999-2009 from Tribune Media Services.
- Programming data for 1999 from Tribune Media Services.
- Nielsen distant viewing data (estimated hours of viewing) for 1999-2003.

[4] *Ibid*.

- Nielsen Reports on Devotional Programs (RODPs) for February sweeps of 1999-2003, February, May, July, and November for 2004-2008, and March, May, July, and November for 2009.
- Nielsen RODPs page R-7 for May, July, November 1999; May, July 2000; November 2001; July 2002; and May 2003.
- Rebuttal Testimony of Alan G. Whitt, In the Matter of Phase II Distribution of the 2000, 2001, 2002, and 2003 Cable Royalty Funds.
- Amended Testimony of William J. Brown, In the Matter of Phase II Distribution of the 2000, 2001, 2002, and 2003 Cable Royalty Funds
- Written Direct Statement of MPAA-Represented Program Suppliers, In the Matter of Distribution of the 2000, 2001, 2002, and 2003 Cable Royalty Funds.
- Testimony of Jeffrey S. Gray, Amended August 20, 2012, In the Matter of Distribution of the 2000, 2001, 2002, and 2003 Cable Royalty Funds.
- Written Direct Statement of Settling Devotional Claimants, In the Matter of Phase II Distribution of the 1998 and 1999 Cable Royalty Funds.
- Distribution Order, In the Matter of Distribution of the 2000-2003 Cable Royalty Funds.
- Final Determination of Distributions Phase II, In re Distribution of Cable Royalty Funds 2000-2003.
- Final Distribution Order, In the Matter of Distribution of the 2004 and 2005 Cable Royalty Funds.
- Revised list of primary programs represented by SDC for 1999-2009.
- Stipulation of the Parties on the Issues of Program Categorization and Scope of Claims, In the Matter of 1990-1992 Cable Royalty Distribution Proceeding.
- Direct Statement of Independent Producers Group, In the Matter of Distribution of 1999-2009 Satellite Royalty Funds, including testimonies of Raul Galaz and Laura Robinson, and data files used by Laura Robinson in her testimony.
- List of IPG-represented claimants in the 2000-2003 Cable Distribution proceedings (Phase II).
- Ruling and Order Regarding Claims and Separate Opinion, In Re Distribution of 1998 and 1999 Cable Royalty Funds.

- Direct Statement of Independent Producers Group, In the Matter of Distribution of 1999-2009 Satellite Royalty Funds, Exhibit 1.
- Ruling and Order Regarding Claims and Separate Opinion, In Re Distribution of 1998 and 1999 Cable Royalty Funds.
- Memorandum Opinion and Order Following Preliminary Hearing on Validity of Claims, In the Distribution of the 2000, 2001, 2002, and 2003 Cable Royalty Funds.
- Order Granting Final Distribution of 2008 Satellite Royalties for the Devotional Category.
- United States Court of Appeals for the District of Columbia, *Settling Devotional Claimants v. Copyright Royalty Board*, Case No. 13-1276 (decided August 14, 2015).

V. Devotional Category and Relevant Programs

The Devotional category is comprised of syndicated programs of a primarily religious theme, not limited to those produced by or for religious institutions.[5] It is my understanding that the copyrighted works that are included in Phase 2 of the proceeding are represented by SDC and IPG. As an economist, I have been asked to propose the most appropriate methodology for the allocation of royalties for SDC and IPG claimants as part of the Phase II proceedings with a "zone of reasonableness" as provided by prior orders of the Judges, and their predecessor panels, which have been subject to appellate court review. In this testimony, I provide a detailed methodology to help the Judges of this court allocate royalty funds for the Devotional category between SDC and IPG claimants.

I received detailed Microsoft Excel spreadsheets with lists of claimants and program titles claimed by both SDC and IPG that appear prominently in the source material (Nielsen ratings data) that my analysis has focused on. However, in terms of claimed programs, the Judges disqualified some programs that are claimed by IPG from the proceeding.[6] It is my understanding that only the following IPG-claimed programs/producers are permitted by the Judges' ruling:

Cable claims:

[5] Stipulation of the Parties on the Issues of Program Categorization and Scope of Claims, In the Matter of 1990-1992 Cable Royalty Distribution Proceeding.
[6] Memorandum Opinion and Ruling on Validity and Categorization of Claims, In Re Distribution of Cable Royalty Funds and In Re Distribution of Satellite Royalty Funds, March 13, 2015.

- "Primary Focus" (2004-2009) by IWV Media;
- All programs by Jack Van Impe (2004-2009);
- All programs by Life Outreach (2004-2009);

Satellite claims:

- "Primary Focus" (2002-2007, 2009) by IWV Media;
- All programs by Jack Van Impe (2001-2007, 2009);
- All programs by Life Outreach (1999-2007, 2009);
- All programs by Billy Graham (2001-2003);
- All programs by Salem Baptist Church (2001).

In the rest of my report, I include only these programs permitted by the CRB.[7]

Nielsen Ratings for the Claimed Programs

The Nielsen sweep reports are available for 1999-2009. The reports rank devotional programs that qualify for inclusion in the report for each sweep period. The criteria for Reporting Standards for programs (program reportability) are set forth in each report, and provide as follows:

> *"A. Program Reportability:*
>
> *1. Syndicated devotional programs must meet the following requirements in order to qualify for inclusion herein:*
>
> - *Program must be taped or on film and available for telecast on a market by market basis.*
> - *Program must have been telecast in at least five NSI markets on reportable commercial TV stations and scheduled at the same time and day in at least two of the four weeks.*
>
> *2. Additional Considerations:*
>
> - *Programs with both black and white and color versions were combined where the program titles were the same.*

[7] IPG also claimed "The City That Forgot About Christmas" (1999-2009) by Envoy/Promark. However, this program appears to be the same program as two other programs claimed by IPG ("The City That Forgot Christmas" by Envoy (2001) and "City That Forgot About Christmas" by Envoy/Promark/Pacific (1999-2009)). It was therefore excluded by the Judges' ruling that "All titles 'cross-claimed' for more than one licensor, except Envoy/Promark, are disallowed from both Devotional and Program Suppliers categories." *Id.* at Ex. A-2, p. 4.

- *Foreign language syndicated programs are not included herein."*[8]

Similarly, the reports include criteria for station reportability for each sweep period as:

> *"Reportable stations are those which qualifies for reporting in the corresponding VIP for the market. Reporting standards are shown in Section III of the VIP and in the Local Reference Supplement. In addition:*
>
> 1. *A station must have telecast the devotional program once during the four measurement weeks (at least three different days for Monday - Friday programs.) Program reportability (see A-1. above) must be met prior to station inclusion.*
> 2. *A station qualifying for a ''Mini-Series'' must have telecast the syndicated program two or more times during any week of the measurement. The telecasts need not have been scheduled at the same air time.*
> 3. *Non-commercial stations are excluded."*

These reports are a very useful guide to understanding what the viewers of religious programming really "value" (see tables R-7 of above-referenced Nielsen Reports). It should be noted that the number of programs included in the ranking is not constant over time. Also, not all program titles claimed by SDC and IPG appears in the Nielsen Reports due to either reportability requirements or very low viewership. This is relevant because any allocation based on the Nielsen rankings or ratings will be exclusive of the programs that were not included in the rankings. I discuss this issue further in later sections.

VI. The Value of a Program: Relative Market Value

It is clear that the current mechanism that determines how the Operators compensate copyrighted program owners does not represent a "free" market in which buyers and sellers exchange goods at mutually agreeable prices. If the Operators could negotiate these prices with the program owners, the price they pay would be based on the "value" the program generates for the Operators. As Dr. Gray discussed in his testimony, this is also known as the "fair market

[8] See, for example, the Nielsen Report on Devotional Programs for February 2004, pages A-B. Please note that with respect to Calendar Years 1999-2003, I only had access to the full Nielsen RODPs for the February sweep months. Elsewhere in this report, I reference a summary page from certain other sweep reports from 1999-2003; however, I did not have access to the pages which describe the reporting standards. Nevertheless, because of the consistency of the reporting standards described in all full reports I have reviewed for 1999-2009, I assume that the standards and procedures were the same as the ones detailed in the February report of the same year.

value" of a given program.[9] This standard has been discussed extensively by the Judges based on the following definition from Dr. Gray: "The price at which the right to transmit a program carried on a distant broadcast signal would change hands between a willing buyer (a CSO) and a willing seller (a copyright owner), neither being under any compulsion to buy or sell."[10] It is my understanding that the Judges agree that "viewership can be a reasonable and directly measurable metric for calculating relative market value" and that, for Phase II purposes, "viewership is the initial and predominant heuristic that a hypothetical CSO would consider."[11] However, it is also my understanding that Judges are "reluctant to rely *solely* on viewership data merely because the marginal bundling adjustments are not readily measurable" in a Phase II proceeding.[12]

The Operators sell bundles of channels to their subscribers with the purpose of attracting a wide range of viewers. That is, subscribers cannot pick and choose the channels they are interested in. Instead, they can select from a small list of "bundles" (ranging from "basic" channels to "premium" channels) which come with channels and programs a subscriber is interested in together with those the subscriber has no interest in watching. For this reason, the Operators carry a wide range of TV channels covering program types such as sports, movies, TV shows, religious programs, and many more. Finally, it is worth summarizing the basic relationships between parties that constitute this "market." TV stations put together (and purchase) menus of programs and other content that would appeal to their audience. Based on the demographic makeup of a given TV station's audience, third parties (e.g., companies, organizations) purchase commercial time from the TV stations to market their goods and services. Then, considering the appeal of the TV station, Operators enter into agreements with TV stations to carry their signal on their menu of TV stations. Subscribers decide which Operator bundles to choose from given the prices and content available to them in their local market. Even though subscribers appear to interact only with the Operators, their decisions (indirectly) depend on actions taken by individual TV stations as well. Subscribers' decisions in

[9] Testimony of Jeffrey S. Gray, Ph.D., May 30, 2012, In the Matter of Distribution of the 2000, 2001, 2002, and 2003 Cable Royalty Funds.
[10] Final Determination of Distributions Phase II, In re Distribution of Cable Royalty Funds 2000-2003, at 22-27.
[11] Final Determination of Distributions Phase II, In re Distribution of Cable Royalty Funds 2000-2003, at 37.
[12] *Ibid*.

return affect how Operators and TV stations act. That is, if a program on a given TV station is very "popular", this program will (1) increase the value (and price) of commercials around the program for the third parties, (2) increase the attractiveness (and price) of the TV station for the Operators, and (3) increase the number of subscriptions for Operators with this TV station in their bundles. On the other hand, the opposite is true for a program that is not "popular." Hence, the relative market value of a program is highly correlated with the demand from the consumers whose decisions affect both Operators and TV stations.

The way the Operators operate may offer a few "candidate" methodologies to determine the relative market value of a program: (1) program volume measured as numbers of programs or hours of programming, (2) number of subscribers, and (3) actual viewing patterns. However, from an economic point of view, the correct methodology for allocating royalties is the one that is based on actual viewing patterns. I discuss in more detail below why actual viewership rather than hours of programming or number of distant subscribers is a more reliable method of allocating royalties.

Volume is not a reliable methodology to allocate royalties because it does not accurately measure relative market value

The other methods may provide insights in this matter, but are not what determines the relative market value of a program. A methodology based on volume is not a reliable method because viewers and Operators may value a 30-minute program more than they value a 90-minute program.[13] This "utility" or satisfaction one receives from a choice made, such as watching a program is not necessarily determined by the length of the program. Given that the "quality" of the content and the time slot when a show is broadcast (e.g., prime time vs. 3:00 in the morning) are significant drivers of "demand", and that the demand for a program will certainly be a determinant of the relative market value of the program, a determination of relative market value should not be based on total hours or total number of programs. [14]

[13] This is also discussed by Dr. Gray in his testimony (amended August 20, 2012) In the Matter of Distribution of the 2000, 2001, 2002, and 2003 Cable Royalty Funds.

[14] Similarly, from an Operator's perspective, with rare exception, programs that are not scheduled on a regular basis are less likely to drive subscriptions than regularly scheduled programs (such as the ones captured by the Nielsen reports). Moreover, absent proof that a non-regularly scheduled program is the rare exception, excluding it from our methodology is appropriate.

Number of subscribers is not a reliable methodology to allocate royalties because it does not accurately measure relative market value of particular programs

The methodology based on the number of subscribers is not a reliable method for allocating shares in Phase II, either. As argued in prior proceedings, Operators are profit maximizing entities that construct bundles (or packages) of channels to attract and retain subscribers. Accordingly, the revenues of an Operator can be attributed to different types of programming that drive subscriptions to the bundle. This is consistent with the Bortz Surveys conducted to measure the relative market value of different types of programming from a cable operator's perspective, whose business assessments are analogous to a satellite operator's, particularly because cable and satellite services are in direct competition for subscribers.[15] Hence, the Bortz Surveys are relevant for Phase I of the proceedings which determine the shares of the eight types of programming. However, Phase II of the proceedings deals with different programs that belong to the same category (e.g., Devotional) which are similar (or homogeneous). Because the effect of one religious program over another on the decision to subscribe cannot be determined merely by counting the number of subscribers to signals with many categories of programming, a method of allocating royalties amongst the devotional programs based on numbers of subscribers is not a reasonable allocation method.

To demonstrate why the method of using total subscribers is not reliable using a simple example, assume in a hypothetical world that all claimants in the Devotional category are broadcast on the same channel provided nationally by all Operators.[16] Because all programs are made available to the same (number of) subscribers, a methodology based on number of subscribers would not be able to offer meaningful percentages to allocate royalties among the programs. The only option based on number of subscribers would be to equally distribute the royalties among the programs which would completely ignore how viewers "value" each show. In other words, the methodology would not be based on the notion of "relative market value" at all.

[15] This can be explained using the following two hypothetical surveys. The first survey asks every subscriber the most important type of programming he/she would like to have in the bundle. The second survey asks every subscriber to provide percentages for each type of programming he/she would like to have in the bundle. The results from both surveys can be used to calculate shares for each category of programming.

[16] It does not matter in how many markets the channel is retransmitted.

Cable Data Corporation (CDC) collects and analyzes information on Statements of Accounts (SOAs) that cable and satellite providers file with the Licensing Division of the Copyright Office.[17] The reports from the CDC provide the number of subscribers together with total royalty fees generated for each channel. Based on the same arguments above, the methodology based on subscribers would not be a reliable royalty allocation methodology, either.

There are additional reasons why a subscription-based methodology is not reliable. First, subscription is simply an offering of a list of channels to the potential viewers, and subscribers pay a price to have *access* to these channels over a certain period of time. In practice, each subscriber is interested in watching a small share of the available channels and programs even though he/she pays the price set for the "bundle." As an example, consider a community where grocery store A sells brand X coffee and grocery store B sells brand Y coffee. Coffee brands X and Y sell for the same price. Assume now that grocery store A has thousands of customers per month attracted to grocery store A's selection of European cheeses, 10 of whom also purchase brand X coffee. Store B, on the other hand, has only a few hundred customers per month all of whom purchase Brand Y coffee. A claim that brand X has a higher relative market value based on the number of customers who patronize store A would clearly miss the mark in this situation. Brand Y coffee clearly has higher "relative market value" - both for the consumers and the grocery store - than brand X coffee given that it is the preferred brand (with higher demand and sales) in this community. The determination of "relative market value" does not depend on how many customers walk through the doors of (or have access to) the grocery store.

To illustrate further, consider a channel with a copyrighted program, Program Z, which is retransmitted via satellite. Assume that Program Z, broadcast on a particular day and time, has thousands of viewers. Now, consider replacing Program Z with another copyrighted program, Program W, while keeping all other programs on the channel unchanged. Assume that there are no subscribers who watch Program W. The theory suggests that Program Z has higher "relative market value" than Program W because (1) higher demand for commercials around

[17] I obtained and reviewed these reports covering 1999-2009 for satellite retransmissions, and 2004-2009 cable retransmissions.

Program Z will increase revenues for the channel,[18] (2) it will increase negotiating power of the channel with the Operators as well as how much the Operators pay the channel to carry the signal, (3) the Operators will have no incentive to carry a signal with Program W which no subscriber chooses to watch.

Actual viewing patterns provide a reliable methodology to measure relative market value

What matters in determining the value of particular programs in Phase II is the actual viewing patterns of the subscribers. The concept of relative market value of a copyrighted program retransmitted on satellite is no different from the relative market value of a program in the local market. What matters from the channel's and Operator's point of view is the "demand" for the program, which is best measured by viewership. If the viewers do not "value" a particular show, one would expect that show not to survive when profit-maximizing firms are involved. We commonly hear about TV shows that are cancelled after a few episodes because the "ratings" were very low.

Nielsen is a well-known organization that conducts national research and publishes information on program ratings. This information, which is reliable and relevant to determine the relative market value of programs, is frequently used by profit-maximizing sellers and purchasers of advertisement time. The viewing pattern of households is clearly the most important factor driving the decisions in the television industry. The Nielsen Diary data is collected during one-week periods over four "sweep" months every year (February, May, July, and November). During these months, Nielsen mails seven-day diaries to homes to measure what was watched on each TV set and these data are then aggregated into Nielsen's database.[19] It is my understanding that the viewership data from Nielsen has been used in previous proceedings and deemed the most important factor in determining the allocation of royalties in Phase II. As I argue above, this is consistent with the notion of relative market value in economic theory.

[18] It is plausible that organizations that consider paying the channel for such commercials also are profit-maximizing entities, and that their rationale for purchasing commercial time is related to the actual or expected viewership of the program.

[19] Direct Testimony of Paul B. Lindstrom, In the Matter of Distribution of the 2000, 2001, 2002, 2003 Cable Royalty Funds.

VII. Royalty Allocation for the Devotional Category

The average ratings provided in the Nielsen Reports on Devotional Programming (also known as Nielsen Diary Data) constitute the primary data source to allocate royalties. These tables, known as Households and Persons Ranking Tables (R-7), provide a ranking of devotional programming sorted by average rating defined as the percentage of households that viewed the program during the sweep periods, on average.[20]

These ratings are reliable measures for determining relative market value, but they are not specifically calculated for programs retransmitted by Operators. However, unless a program is appealing predominantly to local tastes and culture (e.g., a local church service, which is unlikely to meet Nielsen program reportability standards), there is no reason to believe that ratings in the local market are significantly different from ratings in the distant markets, on average. In the absence of any distant ratings data and given that Nielsen ratings include households with both cable and satellite service, Nielsen local ratings can be used as a reasonable proxy for cable and satellite ratings. In addition, I have no reason to believe that the viewing preferences of satellite subscribers differ systematically from cable subscribers.

There are two other issues with the Nielsen ratings which require further analyses. First, there are a few shows that are included in the rankings, but whose ratings are too small to report. These shows, which have average ratings of less than 0.1 percent, have a rating of "LT." Second, not all devotional programs are included in the Nielsen rankings due to the program and station reportability standards set by Nielsen or because they were not ranked due to low ratings.

VIII. Combining Data Files

To provide estimates of relative market value of retransmitted programs by SDC and IPG claimants, I rely on both Nielsen Reports on Devotional Programs for ratings and CDC SOAs for number of distant subscribers. As noted above, R-7 tables in Nielsen Reports ("Nielsen Ratings") provide reliable estimates of national average ratings by program title in each sweep.

[20] The numerator is the number of households tuned in to the channel with the specific program and the denominator is the number of households with access to the channel with the specific program (i.e., coverage).

Additionally, "Market Audience Estimates for Devotional Programs" section of the Nielsen Reports ("Nielsen Audience") provides market-level data on average number of households who viewed each program. If the average rating for a program is missing from the Nielsen Ratings data, then it can be calculated (or estimated) as the sum of number of households from the Nielsen Audience data divided by the number of households in the covered markets (known as "projected coverage" in Nielsen R-7).[21]

To create a distant ratings measure and compare with local ratings, I combine Nielsen Audience data, Nielsen Ratings data, and CDC SOAs as follows: First, I merge the Nielsen Audience data with the CDC SOA data by year and channel. Then, I keep only the records that merge and exclude the rest from my analysis. The excluded records consist of programs that were broadcast on channels that were not distantly retransmitted (with no royalty payments) and channels from CDC data that did not broadcast any of the claimed programs. Then, I aggregate the number of households (from Nielsen Audience data) and distant subscribers by year and program title by summing over the channels. Finally, I merge this combined data with the Nielsen Ratings data by year and program title.

IX. Steps of the Royalty Allocation Methodology

I provide the details of my royalty allocation methodology in a few straightforward steps (notation clarified since my rebuttal testimony in the original proceeding). I denote the average national rating of a program by $Ave\_Rtg_{it}^{k}$ where *i* represents each program title claimed by claimant *k* (SDC or IPG) in year *t*. The number of shows claimed by each claimant *k* in year *t* is represented by N_t^k. The steps of the methodology are as follows:

Step 1: To impute the missing rating information (those with "LT") for a few shows claimed by SDC and IPG, calculate the ratings information using the values provided in the Nielsen Ratings and Nielsen Audience data.[22] Specifically, I estimate the rating by dividing the

[21] The estimated value for rating is expected to be less than or around 0.1 percent.

[22] The total numbers of households that view the program on each channel are available in column 13 of the detailed program data in these reports. The total number of households that view the program divided by the number of total households in the Nielsen sweeps (i.e., projected coverage in the market area) would produce the average rating.

number of households by the projected coverage in Nielsen sweep markets. This allows me to improve the coverage of my allocation estimates. This step only affects the program "James Robison Life Today" (claimed by IPG) for a total of 5 years for cable and 4 years for satellite during 2005-2009 (given that 2008 satellite was resolved by CRB Order granting final distribution to SDC (100%)).[23]

Step 2: Calculate the total distant viewers for SDC and IPG programs in each year by multiplying the average ratings by the number of subscribers for channels the relevant SDC and IPG programs are broadcast on, and summing over all such programs:

$$Viewer_t^k = \sum_{i=1}^{N_t^k} \left[Subscriber_{it}^k * Ave\_Rtg_{it}^k \right] + Adjustment_t^k \qquad k = SDC, IPG \qquad (1)$$

where *t* ranges between 2004 and 2009 for cable and between 1999 and 2009 for satellite and subscript *i* represents each program title claimed by claimant *k*. This step measures the number of U.S. households tuned in to any of the programs claimed by SDC and IPG in a given year. This amount can be adjusted to account for claimed program titles (for both SDC and IPG) that are not included in Nielsen ratings, denoted by $Adjustment_t^k$, for year *t* and claimant *k*. This step is necessary to account for all claimed programs in the royalty allocation methodology, but requires additional data.[24]

Step 3: Using the estimate of distant viewers, calculate the share of royalties, for example, for SDC by:

$$Share_t^{SDC} = \frac{Viewer_t^{SDC}}{Viewer_t^{SDC} + Viewer_t^{IPG}} \qquad (4)$$

where *t* ranges between 2004 and 2009 for cable and between 1999 and 2009 for satellite.

Royalty Estimates under my Proposed Methodology

[23] Imputing small values (less than 0.1 percent) instead provides very similar results with no significant effect on the resulting shares.

[24] It is logical to assume that the share of royalties for a given party (SDC or IPG) should increase with the number of claimed programs.

I calculate my royalty share estimates by removing all IPG programs disqualified by the Judges' ruling and ensuring that all programs permitted by the Judges' ruling were included (listed above) using the methodology described above. To avoid assigning (distant) subscribers to non-compensable programming, and to ensure that any treatment of WGN\WGNA does not unfairly benefit SDC, which is now the only devotional claimant with a rated compensable program on WGN\WGNA, I remove programming on WGN\WGNA completely from my calculations.[25]

The satellite royalty allocations for IPG are lower than the cable royalty allocations because its claimants' programs generally did not appear on the stations that were most highly retransmitted in satellite, demonstrating why coupling ratings with distant subscribers may be more appropriate to establish relative market value (because ratings alone do not take into account that not all programs are retransmitted equally, or at all, in distant markets).

X. Order Reopening Record

On May 4, 2016, the Judges reopened the record for this proceeding and requested additional evidence due to shortcomings of proposed methodologies. Based on the Judges' comments in that order, I conducted additional analyses to supplement the methodology and royalty shares I had previously presented (as restated or summarized in prior sections, as appropriate) to the Judges. Specifically, the Judges stated:

[25] Note that this only affects the satellite allocation in this proceeding given that the programs left were broadcast on WGN/WGNA only during 1999-2001. With the disqualification of certain IPG programs, the only remaining compensable devotional programs claimed in this proceeding that were broadcast on WGN and retransmitted on WGNA at the same time are "Miracles Now," a program claimed by the SDC in 1999-2001, "James T. Meeks" and "Reverend Meeks" by Salem Baptist Church, programs claimed by IPG in 2001 only, and "Billy Graham" and "Billy Graham Youth Special", programs claimed by IPG in 2001-2003. "Miracles Now," an SDC program, was broadcast on WGN and retransmitted on WGNA at the same time weekly during all of 1999-2001. IPG program "James T. Meeks," on the other hand, was broadcast only three times and "Reverend Meeks" was broadcast only once on WGN and retransmitted on WGNA at the same time in 2001. "Billy Graham Youth Special" and "Billy Graham," claimed by IPG, were broadcast only once on WGN and retransmitted on WGNA at the same time in 2002 and 2003, respectively. Also, "James T. Meeks" and "Reverend Meeks" in 2001 and "Billy Graham" and "Billy Graham Youth Special" in 2002-2003 are unrated programs, apparently because they were not regularly scheduled broadcasts, and hence carry no value in my methodology because I have no evidence of viewership. On the other hand, "Miracles Now" is a rated program over 1999-2001, which would increase the royalty shares for SDC if included. Based on this background, I would add that by excluding WGN/WGNA, the value of the SDC share is understated in our calculations for 1999-2001 and should form the lowest point in any zone of reasonableness analysis for the SDC.

"The SDC's implementation of its methodology suffers from a critical lack of data. First, Dr. Erdem bases his conclusion that local ratings are an appropriate proxy for distant viewing on a correlation that he derived solely from February 1999 data. There is no basis in the record for the Judges to conclude that the correlation Dr. Erdem found in the 1999 data continues unchanged throughout the entire succeeding decade. Dr. Erdem's decision to rest his entire analysis of relative market value over a decade on such a diminutive slice of distant viewing data raises a question concerning the reliability of the application of his methodology. See 4/16/15 Tr. at 170 (Robinson).

Second, the local ratings data on which Dr. Erdem rests his conclusions regarding relative market value are extremely sparse. For 1999 through 2003, Dr. Erdem relies on ratings data from a single month in each year to compute relative market value. The Judges will not rest a determination upon such a slender evidentiary reed."

XI. Data Files Recently Received

I was recently provided with a new file which included some of the missing Nielsen rating data. Previously, the Nielsen Reports on Devotional programs only included the February report for 1999-2003. The new file provided relevant data (page R-7 containing summary information) for all three remaining reports for 1999, two more reports (May and July) for 2000, and one more report for 2001 (November), 2002 (July), and 2003 (May). In the rest of this report, I refer to these additional R-7 data with local ratings from eight sweeps as *Supplemental Nielsen RODPs*.

I exclude the Supplemental Nielsen RODPs from my baseline royalty share calculations. However, I include them in some of the analyses or sensitivity checks presented below. The "baseline" royalty shares are presented in Exhibit 2. The average shares for the SDC are 90 and 98 percent during 2004-2009 for cable and 1999-2009 for satellite, respectively. I would note that there are certain differences between the distributions in this report and the ones in my prior testimony. The differences are attributed to two key factors: 1) I received updated SOA information from CDC, and 2) the erroneous inclusion of Jack Van Impe programming in 1999 and 2000 distributions in my last testimony. This inclusion overstated IPG's share for those two years, because IPG did not make claim for that claimant in 1999 or 2000.

XII. Supplemental Analyses in Response to the Judges' Criticism

To address the Judges' first criticism on solely relying on 1999 February data to establish that there is a positive, statistically significant correlation between local and distant ratings, I expanded my analysis to include Nielsen distant viewing data (i.e., HHVH) from 2000-2003. Additionally, in addition to reporting the correlation coefficient for the relationship between local and distant ratings, I conduct regression analyses relating distant ratings to local ratings. Regression analysis is a widely-accepted statistical tool for the investigation of relationship between a dependent and an independent variable while also controlling for other factors. This tool allows the user to determine whether or not there exists a statistically significant relationship (positive or negative) between any two variables. The estimated coefficient of an independent variable represents the "marginal effect" of that independent variable on the dependent variable. Unlike a correlation analysis, a regression analysis allows the user to include multiple independent variables to "explain" variation (or changes) in the dependent variable.

To conduct the regression analysis, which includes the Supplemental Nielsen RODPs, I merge the following data sources: (i) 1999-2003 Nielsen distant viewership data (known as household viewing hours (HHVH) data), (ii) 1999-2003 Nielsen rating table (R-7) for ranked programs, and (iii) 1999-2003 CDC Statement of Accounts with subscription information. To create a measure of "distant ratings", I divide the average number of households tuned in for the program by the number of distant subscribers for the channels that broadcast the program. This estimate provides a comparable measure to the local ratings in the Nielsen Diary data for the distant markets.[26]

I conduct two sets of regression analyses using distant rating as the dependent variable.[27] First, using 60 data points from claimed programs, I estimate three models. In model

[26] Note that this measure is not necessarily the equivalent of Nielsen local rating for the distant markets, but a comparable measure that divides viewership data by the population size.

[27] Because programs with zero local rating are not included in the Nielsen RODPs, I exclude programs with no reported distant viewing (i.e., HHVH of zero hours) as well. However, I repeat the analyses by including programs with no reported distant viewing and find that the impact on estimated coefficients is minimal. The statistical significance of the findings and my conclusions do not change.

1, I include only the local rating as the independent variable. In model 2, I include a trend variable for 1999-2003, in addition to the local rating. In model 3, I include year dummies, in addition to the local rating. Second, I re-estimate the same three models using 104 data points from all programs (not only the ones claimed by SDC or IPG) over the same time period. Given that these programs are relatively homogeneous, including observable (and objective) program-specific factors would not affect the results in a significant way. Also, because ratings are calculations over many stations, including station-specific factors is not feasible.

Exhibit 3 provides the results from the regression analyses where the first column shows the independent variables, next three columns show the coefficient estimates and the standard errors for the three models that are based on claimed programs, and the last three columns show the coefficient estimates and the standard errors for the three models that are based on all programs. The coefficient estimates that are statistically significant are denoted by * or **, for 5 percent and 1 percent significance levels, respectively, in Exhibit 3.[28] For all three models that are based on the claimed programs over 1999-2003, I find that the coefficient for the distant rating measure is positive (0.008) and statistically significant for all three models (no covariate, trend variable, and year dummies, respectively).[29] When I repeat the estimation using all programs over the same time period, I get similar and consistent results: The coefficient for the distant rating measure is positive and statistically significant for all three models. This analysis, which is based on approximately 5 times more data points than the correlation analysis with 1999 February ratings, indicates a strong positive relationship between local ratings and distant viewership calculated as a percentage of distant subscribers. The

[28] A coefficient estimate that is statistically significant at the 1 percent significance level is a "better" result than a coefficient estimate that is statistically significant at the 5 percent significance level.

[29] Note that objective of this analysis is to establish the positive and statistically significant relationship between distant and local ratings. The magnitude of the regression coefficient, which would depict how much the dependent variable moves with a unit change in the independent variable (known as the marginal effect), is not relevant. Also, R-squared values range between .3 and .45, depending on the model, and are reasonable. In this analysis, the R-squared simply explains how much of the variation in distant rating is explained by the included independent variables.

correlation coefficient for the 60 data points from claimed programs during 1999-2003 is 0.79 and it is statistically significant.[30]

In the two additional models where I test if the distant ratings change over time or by year, I find that the coefficients for the trending term and year dummies are not statistically significant. That is, after controlling for local ratings, distant ratings appear to be consistent and stable over 1999-2003. These findings allow me to use the local ratings as a measure of cable and satellite retransmission ratings in the royalty allocation methodology below. They additionally allow me to conclude that local ratings can be used throughout 1999-2009 given the lack of evidence for trends or year fixed effects.[31, 32]

To address the Judges' second criticism on relying on only one month of rating data (i.e., February rating reports from Nielsen) for 1999 through 2003, I conducted multiple analyses. First, to investigate if local ratings for February are representative of an entire year, I analyzed the consistency of ratings for claimed programs over all Nielsen sweep months over 2004-2009, as I had access to all four reports for these years.[33] For every program claimed by SDC or IPG that is rated in February, I calculated how often the program is rated in the remaining three sweep months excluding the Supplemental Nielsen RODPs. Exhibit 4 shows that if a program was rated in February, it was also rated in all three remaining sweep months for approximately 91 percent of the time implying that it is highly likely that a program is rated for the rest of the year if it is rated in February. When I included the Supplemental Nielsen RODPs for 1999 for which all four sweep months are available, the results were almost identical.

[30] I present the correlation coefficient as additional evidence, as well as for completeness. There is no accompanying exhibit for this statistic.

[31] Note that one could forecast distant ratings for 2004-2009 using this model. The analyses presented in the later sections based on these projections (equal to estimated coefficient times the local rating for the program) instead of the local ratings themselves would produce similar results.

[32] I repeated the regression and correlation analyses by excluding the Supplemental Nielsen RODPs, and receive very similar results.

[33] These sweep months are February, May, July, and November for each year except in 2009 when the first sweep month is March.

Second, I calculated the change in the ratings between February and every other sweep month for each claimed program.[34] This is simply a calculation of the difference between the rating of a program in February and the rating of the same program in May. Exhibit 5 shows that the change (calculated over 242 comparisons) was at most 0.1 percentage points approximately 97.1 percent of the time (exactly 0 for 51.2 percent of the time and 0.1 percentage points for 45.9 percent of time time). This analysis also shows that the rating of a program was highly stable within a year: There was rarely a change in ratings that was greater than 0.1 percentage points. When I included all the newly received Nielsen reports for 1999, I found out that the change was at most 0.1 percentage points for 96.4 percent of the time (calculated over 278 comparisons).[35]

Third, I checked the impact of using only February ratings data on my royalty estimates even for years when I have access to four reports. If the impact is small, then this is further evidence that February is representative of the whole year. Exhibit 6 shows that the impact of royalty share estimates was very small: The largest changes in the shares of programs claimed by SDC were 2.8 percentage points for cable in 2004 and 0.3 percentage points in 2005 for satellite.[36] Finally, I expanded my calculations by including all the Supplemental Nielsen RODPs for 1999-2003. This analysis would not impact the royalty estimates for cable given that the additional data predates the relevant time period (i.e., 2004-2009). Exhibit 7 shows that the impact of using a more comprehensive data has almost no impact (when rounded to 1 decimal point) on the royalty shares.

XIII. Conclusion

In this report, I provided analyses which show that (1) there is a positive and statistically significant relationship between local and distant ratings, (2) distant ratings do not vary significantly over time (based on evidence from 1999-2003) after controlling for local ratings, (3)

[34] Because ratings are percentages with one decimal point, the differences can only be 0, 0.1, 0.2, and so on, percentage points with exactly one decimal point.
[35] I excluded the Supplemental Nielsen RODPs for 2000-2003 from this analysis given that I did not have all four reports for these years.
[36] Because the "baseline" satellite estimates for 1999-2003 are based only on February reports, there is no impact on shares presented in Exhibit 5 for these years.

Nielsen reports for February are representative of the whole year, and (4) royalty shares that are based only on February Nielsen Reports are very similar to those that are based on all four Nielsen Reports. Compared to my earlier report, I was provided with summary pages from more Nielsen RODPs to improve the royalty share allocations. I expanded my analyses that correlate local and distant ratings data by incorporating the additional information. When both local and distant ratings data is available, I showed that they are positively correlated and that relationship is statistically significant.

It is my understanding that distant viewing data for 2004-2009 is not available. Because I find no evidence of a trend or statistically significant differences across individual years during 1999-2003, I used local ratings for royalty share calculations for 2004-2009 as well.

The CRB has recently ruled that IPG methodology in prior proceedings (based on the metrics that measure volume rather than value), which is repackaged and presented slightly differently in previous proceedings, is seriously deficient.[37] The CRB also has indicated that viewership-based models of valuation are consistent with Library precedent and "relative market value" could be made by reliance on viewership information when a more optimal valuation tool was not available.

Note on Shapley Value Methodology

In its 1999 distribution decision, the Judges suggested that a Shapley Value Methodology would be more ideal. In theory, more precise or optimal royalty share allocation could have been possible using an approach that is based on the Shapley Value. This methodology could allow us to calculate average marginal contribution (or value) of each program claimed by SDC or IPG over all potential orderings of the claimed programs that are retransmitted distantly by an Operator.[38]

However, as I and other testifying experts have agreed, the data to conduct such an analysis is unavailable. We can only observe the "actual" ordering of programs, and we cannot

[37] Initial Determination of Distributions of 1999 Cable Royalty Funds (Phase II), page 20.
[38] Initial Determination of Distributions of 1999 Cable Royalty Funds (Phase II), pages 14-16.

precisely estimate the marginal value of each program (e.g., when SDC and IPG have one claimed program on a given CSO/SO) even in this actual ordering. The "perfect" study or data required to calculate or approximate Shapley Values for the claimed programs simply do not exist to the best of my knowledge. Even if the data existed and were obtainable, it is unlikely that existing computer technology would permit the computation of a true Shapley valuation on any cable or satellite system retransmitting any significant number of stations, because of the immense number of operations required. The best we can do is to glean certain characteristics of what a Shapley valuation would show, if it could be conducted. As I previously testified and as the Judges found, Shapley valuation predicts that ratings underestimate the value of the most highly viewed programs, when comparing programs geared toward similar audiences that have similar levels of overlap among viewers. Since the SDC have consistently had the higher rated programs in these proceedings, this reinforces my conclusion that even as the Nielsen ratings and viewership data provide the closest approximation to how subscribers value specifically claimed programs in the devotional category, which in turn should affect how Operators value these specific, individual programs, they likely understate the relative value of the SDC's programs compared to IPG's.

Thank you for the opportunity to present my analyses. I hope they will be useful in the proceedings.

XIV. Declaration of Erkan Erdem

I declare under penalty of perjury that the foregoing testimony is true and correct, and of my personal knowledge.

Executed on August 17, 2016

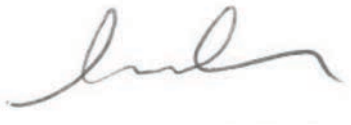

Exhibit 1. Curriculum Vitae

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Senior Manager

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Function and Specialization
Dr. Erkan Erdem is a Senior Manager in KPMG's Economic and Valuation Services (EVS) practice. Dr. Erdem has eight years of research and consulting experience. He provides economic services to KPMG's clients and teaches econometrics at University of Maryland's Masters in Applied Economics program.

Representative Clients
- Maryland Health Services Cost Review Commission (HSCRC)
- New York State Department of Health
- CMS, CMMI
- Administration on Aging

Professional Associations
AEA, APHA, ASA, and AcademyHealth

Languages
English, Turkish

Education, Licenses & Certifications
- PhD in economics from The Pennsylvania State University
- BS in mathematics and BA in economics from Koç University, Istanbul

Programming Skills
- Matlab, STATA, Gauss, SAS, and C
- Tableau

Background

Dr. Erdem is an expert in program evaluation, policy analysis, statistical modeling, econometrics, and data analytics. He has extensive experience with Medicare payment systems and health care claims data. He teaches graduate-level econometrics at University of Maryland as an Adjunct Professor. Prior to joining KPMG, Dr. Erdem was a Senior Research Associate at IMPAQ International, where he led federal government projects. Prior to IMPAQ, he worked as an Economist at Bates White where he prepared expert reports on mergers and acquisitions, monopolization disputes, market power and concentration issues, and cartels. He has worked closely with clients including leading law firms, Fortune 500 companies, and government agencies on a number of projects.

Testifying Experience

- In the Matter of Phase II Distribution of the 1998 and 1999 Cable Royalty Funds, Docket No. 2008-1 CRB CD 1998-1999 (Phase II) (Copyright Royalty Board).

Professional and Industry Experience

- Assisting the Center for Consumer Information and Insurance Oversight (CCIIO) with the review and evaluation of the financial performance of the State-based Marketplaces (SBMs).
- Assisting CCIIO with verification of employer-sponsored coverage (ESC) and analysis of advance payments of the premium tax credits (APTC) granted for health coverage purchased through the Federally-facilitated Marketplace.
- Supporting the New York State Department of Health (NYDOH) Delivery System Reform Incentive Payment (DSRIP) Program with community needs assessments and definition of target populations for various projects for healthcare providers' project plan applications.
- Assisting the Centers for Medicare & Medicaid Services (CMS) Office of Minority Health (OMH) with data analytic support related to identifying high risk populations and reducing health disparities for minority and disadvantaged populations.
- Assisting The State of Maryland, Health Services Cost Review Commission (HSCRC) with its implementation of the state's All-Payer Model as part of the new Medicare waiver with the CMS.
- Led the technical efforts in the Comparative Effectiveness Research (CER) Public Use Data Pilot Project for the Centers for Medicaid & Medicare Services (CMS) to create de-identified Public Use files (PUFs) using Medicare claims data. Led a team of economists and statisticians to generate samples of Medicare beneficiaries, link and process enrollment and claims data sets, and apply various statistical disclosure limitation techniques to prepare analytic files that meet HIPAA standards.
- Led the design of the methodology for the calculation of baseline and benchmark Medicare Fee-for-Service (FFS) expenditures in the Comprehensive End-Stage Renal Disease (ESRD) Care (CEC) Initiative for the Center for Medicare & Medicaid Innovation (CMMI). Reviewed and synthesized payment models in the Medicare

Shared Savings Program (SSP) and Pioneer Accountable Care Organization (ACO) Model as part of the task.

- Conducted monitoring and evaluation of the Bundled Payments for Care Improvement Initiative (BPCI) for CMMI with a focus on services provided around the acute care hospital stay (i.e., episode of care). Statistically identified diagnoses with a potential to generate savings and designed various cost and utilization measures to assess the performance of the initiative compared to appropriate benchmarks.
- Conducted a rapid-cycle evaluation of the Community-based Care Transitions Project (CCTP) for CMS to assess the impact of the program on continuity of care and outcomes, including readmissions, emergency visits, medication errors, costs, and patient satisfaction.
- Conducted the process evaluation of the Chronic Disease Self-Management Program (CDSMP) for the Administration on Aging (AoA) and analyzing the determinants of completion rates using participant-level data.
- Evaluated the performance of over 1,000 hospitals in the U.S. in the National Content Developer Project for CMS. The data elements cover patient safety culture, measurement of health care processes and outcomes, infection control, procedures, medications, nursing practices, communication.
- Investigated the response rates in the Consumer Assessment of Healthcare Providers and Systems (CAHPS) survey using a predictive regression model and reported the findings to CMS with recommendations for future surveys.
- Provided analyses for the liability and the damages experts for AMD Inc. in the exclusionary conduct litigation of Intel Corp. (AMD Inc. vs. Intel Corporation).
- Estimated damages to
    - Novell, Inc. in the Microsoft monopolization litigation (In re Microsoft Corp. Antitrust Litigation).
    - Purchasers in the price-fixing litigation of global rubber chemicals manufacturers (In re Rubber Chemicals Antitrust Litigation).
    - Purchasers of hypodermic products in a foreclosure litigation involving a major medical supplies company.
- Analyzed the competitive effects of a merger in the
    - Oil refining industry in the U.S.
    - Liquor distribution industry in the U.S.
- Developed a methodology and a simulation model to estimate damages in Section II (i.e., monopolization) cases.
- Provided economic analyses related to the calculation of water price in an international arbitration case.
- Analyzed market power of Shell Trading Gas & Power Company in proceedings before the Federal Energy Regulatory Commission (FERC).
- Conducted a review of the econometric modeling in the Enron bankruptcy

litigation.

Publications and Research Papers

- Erdem, E. "Prevalence of Chronic Conditions Among Medicare Part A Beneficiaries in 2008 and 2010: Are Medicare Beneficiaries Getting Sicker?" *Preventing Chronic Disease*. 2014;11:130118.
- Erdem, E., Korda, H., Woodcock, C., and Pedersen, S. "Racial and Ethnic Minority Participants in Chronic Disease Self-Management Programs (CDSMP): Findings from the Communities Putting Prevention to Work Initiative." *Ethnicity and Disease*. Vol. 23. Autumn 2013.
- Erdem, E., Korda, H., Sennett, C., and Haffer CS. "Medicare Claims Data as Public Use Files: A New Tool for Public Health Surveillance. *Journal of Public Health Management & Practice*. Forthcoming.
- Erdem, E. and Korda, H. "Self-Management Program Participation by Older Adults with Diabetes: Chronic Disease Self-Management Program (CDSMP) and Diabetes Self-Management Program (DSMP)." *Family and Community Health*. April/June 2014. Vol. 37(2):134–146.
- Erdem, E., Fout, B., and Abolude, A. "Hospital Readmission Rates in Medicare." April 2013. *Journal of Hospital Administration*. Revise and resubmit.
- Erdem, E. and Holly Korda. "Medicare Fee-for-Service Spending for Diabetes: Examining Aging and Co-morbidities." *Journal of Diabetes and Metabolism*. Forthcoming.
- Erdem, E. "Chronic Conditions and Medicare Spending." *Medicare and Medicaid Research Review*. Revise & Resubmit.
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- Erdem, E., Prada, S. and Haffer, C. "Medicare Payments: How much Do Chronic Conditions Matter?" *Medicare and Medicaid Research Review*. 2013: Volume 3 (2).
- Erdem, E., Korda, H., Woodcock, C., and Pedersen, S. "From Participation to Completion: Older Adults in the Communities Putting Prevention to Work—Chronic Disease Self-Management Program (CDSMP) Initiative." Working Paper, March 2013.
- Erdem, E. and Thomas W. Concannon. "What Do Researchers Say about Proposed Medicare Claims Public Use Files?" *Journal of Comparative Effectiveness Research*, November 2012, Vol. 1, No. 6, pp. 519-525.
- Erdem, E. "Chronic Conditions in Medicare." IMPAQ Research Brief #3. IMPAQ International LLC, November 2011.
- Erdem, E. "Gender Differences in Home Health Care Utilization in Medicare." IMPAQ Research Brief #1. IMPAQ International LLC, September 2011.
- Erdem, E. and Sergio Prada. "Creation of Public Use Files: Lessons Learned from the Comparative Effectiveness Research Public Use Files Data Pilot Project." Joint Statistical Meeting Proceedings, Government Statistics Section. Alexandria, VA:

American Statistical Association, pp. 4095-4109, 2011.

- Erdem, E. and James Tybout. "Trade Policy and Industrial Sector Responses: Using Evolutionary Models to Interpret the Evidence." *Brookings Trade Forum 2003*, pp. 1-43.
- Erdem, E. "An Empirical Model of Investment Behavior in Dynamic Oligopolies." Working Paper, 2005.
- Erdem, E. "Strategic Investment and Endogenous Entry." Working Paper, 2003.

Conference Presentations

- Erdem, E. "From Participant to Completer: Understanding Completion Rates among Older Adults in the Chronic Disease Self- management Program." American Public Health Association Annual Meeting, Boston, MA, November 2013.
- Erdem, E., Singh, A., and Borton, J. "Aggregate Level Public Use Files with High Data Confidentiality and Analytic Utility for Descriptive Analyses from Medicare Claims Data." Joint Statistical Meetings, Montreal, QC, August 2013.
- Erdem, E. "Medicare Public Use Files for Research, Training, and Innovation." Panel Chair. AcademyHealth 2013 Annual Research Meeting, Baltimore, MD, June 2013.
- Erdem, E. "Chronic Conditions and U.S. Health Care." American Public Health Association Annual Meeting, San Francisco, CA, October 2012.
- Erdem, E. "Getting the DIRT [Data for Innovation, Research, and Transparency] on Medicare and Medicaid Public Use Files." AcademyHealth 2012 Annual Research Meeting, Orlando, FL, June 2012.
- Erdem, E. "An Introduction to Medicare Claims Public Use Files (PUFs)." AcademyHealth Methods Webinar Series, July 26 and August 9, 2011.
- Erdem, E. "Creation of Public Use Files: Lessons Learned from the Comparative Effectiveness Research Public Use Files Data Pilot Project."
    - American Evaluation Association Meeting, Anaheim, CA, November 2011.
    - Joint Statistical Meetings, Miami Beach, FL, August 2011.
- Erdem, E. "CMS Public Use Files for Comparative Effectiveness Research", AcademyHealth Annual Research Meeting Innovation Center, Seattle, WA, June 2011.
- Erdem, E. "New CMS Data Sets: CMS 2008 BSA Inpatient Claims PUF." Health 2.0 Developer Challenge Code-a-thon, Washington, DC, February 2011.

Exhibit 2. Royalty Distribution for SDC Claimants

Year	SDC Cable share	SDC Satellite share
1999	-	100.0%
2000	-	100.0%
2001	-	98.8%
2002	-	98.5%
2003	-	97.2%
2004	89.1%	98.8%
2005	89.2%	98.4%
2006	87.5%	91.2%
2007	92.4%	97.1%
2008	90.2%	Case resolved
2009	90.0%	97.9%

Note: Values subject to rounding. 2008 Satellite was resolved by CRB Order granting final distribution to SDC (100%).

Exhibit 3. Regression Analysis Results

Dependent variable: Distant rating	Claimed Programs			All Matched Programs		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Local rating	0.008	0.008	0.008	0.006	0.006	0.006
	(9.84)**	(9.87)**	(9.64)**	(9.25)**	(9.24)**	(8.96)**
Year (Trend)		-0.000			-0.000	
		(1.23)			(0.64)	
1999			-			-
2000			-0.000			-0.001
			(0.15)			(0.75)
2001			-0.001			-0.000
			(0.93)			(0.50)
2002			-0.001			-0.000
			(1.38)			(0.44)
2003			-0.000			-0.000
			(0.61)			(0.10)
Constant	-0.001	0.403	-0.000	0.001	0.218	0.00
	(1.55)	(1.23)	(0.33)	(0.03)	(0.64)	(0.06)*
R^2	0.63	0.64	0.64	0.46	0.46	0.47
N	60	60	60	104	104	104

Note: * p<0.05; ** p<0.01. t-statistics are presented in parentheses.

Exhibit 4. Consistency of Local Ratings – Being Ranked

	Excluding recently received RODPs for 1999		Including recently received RODPs for 1999	
Category	**Frequency**	**Percentage**	**Frequency**	**Percentage**
Ranked in all 3 sweeps	78	90.70%	90	91.84%
Missing in one sweep	4	4.65%	4	4.08%
Missing in two sweeps	0	0.00%	0	0.00%
Missing in three sweeps	4	4.65%	4	4.08%

Exhibit 5. Consistency of Local Ratings – Change in Ratings over Time

	February to May		February to July		February to November		Overall	
Excluding Supplemental Nielsen RODPs for 1999								
Change in rating	**Frequency**	**Percent**	**Frequency**	**Percent**	**Frequency**	**Percent**	**Frequency**	**Percent**
Equal to zero	51	62.96%	36	44.44%	37	46.25%	124	51.24%
0.1 percentage points	29	35.80%	41	50.62%	41	51.25%	111	45.87%
0.2 percentage points	1	1.23%	4	4.94%	1	1.25%	6	2.48%
0.3 percentage points	-	-	-	-	1	1.25%	1	0.41%
Total	**81**	**100.00%**	**81**	**100.00%**	**80**	**100.00%**	**242**	**100.00%**
Including Supplemental Nielsen RODPs for 1999								
Change in rating	**Frequency**	**Percent**	**Frequency**	**Percent**	**Frequency**	**Percent**	**Frequency**	**Percent**
Equal to zero	60	64.52%	44	47.31%	43	46.74%	147	52.88%
0.1 percentage points	32	34.41%	43	46.24%	46	50.00%	121	43.53%
0.2 percentage points	1	1.08%	6	6.45%	1	1.09%	8	2.88%
0.3 percentage points	-	-	-	-	2	2.17%	2	0.72%
Total	**93**	**100.00%**	**93**	**100.00%**	**92**	**100.00%**	**278**	**100.00%**

Note: The Supplemental Nielsen RODPs for 2000-2003 are excluded from this analysis given that not all four reports for these years are available.

Exhibit 6. Royalty Allocation for SDC and IPG Claimants – Sensitivity Check 1

	Cable			Satellite		
Year	SDC share	SDC share (only February Nielsen sweeps)	Change	SDC share	SDC share (only February Nielsen sweeps)	Change
1999	-	-		100.0%	100.0%	0.0%
2000	-	-		100.0%	100.0%	0.0%
2001	-	-		98.8%	98.8%	0.0%
2002	-	-		98.5%	98.5%	0.0%
2003	-	-		97.2%	97.2%	0.0%
2004	89.1%	86.3%	-2.8%	98.8%	98.6%	-0.2%
2005	89.2%	89.4%	0.2%	98.4%	98.1%	-0.3%
2006	87.5%	89.0%	1.5%	91.2%	91.0%	-0.2%
2007	92.4%	92.1%	-0.2%	97.1%	97.1%	0.0%
2008	90.2%	91.1%	0.9%		Case Resolved	
2009	90.0%	89.7%	-0.3%	97.9%	97.9%	0.0%

Note: Values subject to rounding.

Exhibit 7. Royalty Allocation for SDC and IPG Claimants – Sensitivity Check 2

	Satellite		
Year	SDC share	SDC share (All available Nielsen Reports)	Change
1999	100.0%	100.0%	0.0%
2000	100.0%	100.0%	0.0%
2001	98.8%	98.8%	0.0%
2002	98.5%	98.4%	0.0%
2003	97.2%	97.3%	0.1%
2004	98.8%	98.6%	-0.2%
2005	98.4%	98.1%	-0.3%
2006	91.2%	90.2%	-1.0%
2007	97.1%	97.0%	-0.1%
2008		Case Resolved	
2009	97.9%	98.0%	0.2%

Note: Values subject to rounding.

Certificate of Service

I hereby certify that on Thursday, April 05, 2018 I provided a true and correct copy of the 7000 - Erdem WDT to the following:

MPAA-Represented Program Suppliers, represented by Gregory O Olaniran served via Electronic Service at goo@msk.com

Independent Producers Group (IPG), represented by Brian D Boydston served via Electronic Service at brianb@ix.netcom.com

Signed: /s/ Michael A Warley